



IsoLoop Isolation Amplifier

Input and output galvanically isolated

Isolation voltage 2 kV_{dc}

No separate power supply needed

Supplied by the primary circuit

Loop-drop typ. 6.5 V_{dc}

Transmission error $< 0.1\%$

Transmitter- and instrument isolator and DC/DC converter

Open-loop protection

Low transfer capacity



Description

The current signal on the input drives an oscillator circuit which generates the output signal through a transformer, resulting in galvanic isolation between the input and the output.

Optimal accuracy is gained by opto-coupler feedback from output to input circuits. Input and output are protected against voltage peaks and reverse polarity.

IsoLoop can be used when galvanic separation of 4...20 mA analogue signals is required.

Both the IsoLoop and the secondary loop will be supplied from the power supply in the primary loop.

Due to the unique design, IsoLoop can be used as a transmitter/instrument isolator as well as a DC/DC converter.

The primary loop can be protected against interruptions in the secondary loop by a built-in zener diode.

IsoLoop ensures perfect galvanic isolation with a high degree of transmission accuracy, a short response time and low capacitive transmission between input and output.



Technical Data

Input data

Signal type	4...20 mA, 2-wire
Voltage drop	< 6.5 V _{dc} at 20 mA/15 V _{dc} (See graph)
Protection	+/- 35 V _{dc}

Output data

Signal type	4...20 mA, 2-wire
Current limiting	Nom. 28 mA
Response time	< 1 msec. (10...90%)
Protection	+/- 35 V _{dc}

Other data

Isolation voltage	2 kV _{dc}
Transmission error	< 0.1% f.r. (incl. lin. error)
Temperature drift	Typ. 0.003% per °C Max. 0.01% per °C
Voltage drift	< 0.001 mA per V
Transmission capacity	Typ. 15 pF

Environmental conditions

Operating temperature	-10...60°C
Storage temperature	-40...85°C
Humidity	< 90% RH, non-condensing
Vibrations	Lloyds Register, test 2

EMC data

Immunity	EN 50082-2
Emission	EN 50081-1

Mechanical data

Dimensions	62 x 88 x 24 mm
DIN-rail mounting	According to DIN 46277
Protection class	Housing: IP 30 Terminals: IP 10
Weight	0.1 kg

Disposal of product and packing

According to national laws or by returning to Bourdon-Haenni

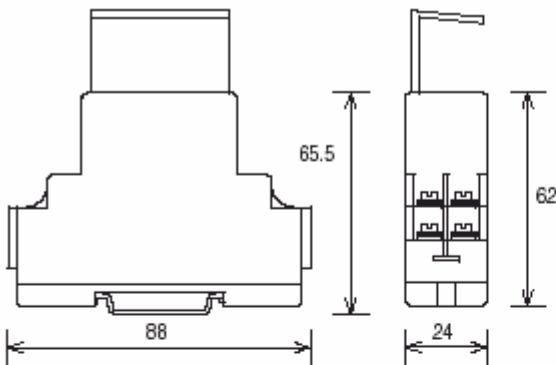
Ordering Details - IsoLoop Isolation Amplifier

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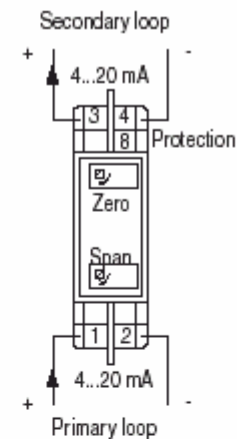
IsoLoop Isolation Amplifier

Dimensional Drawing

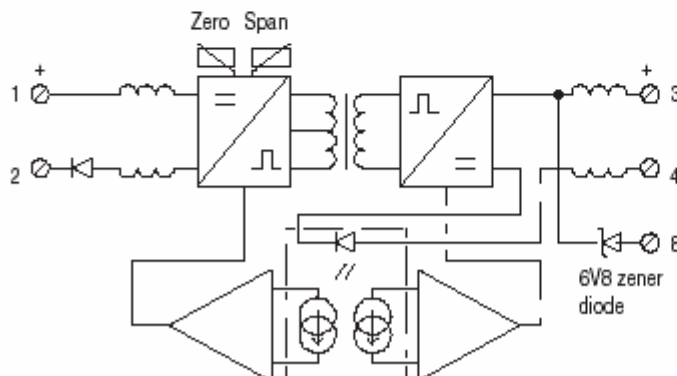
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Electrical Installation



Block Diagram

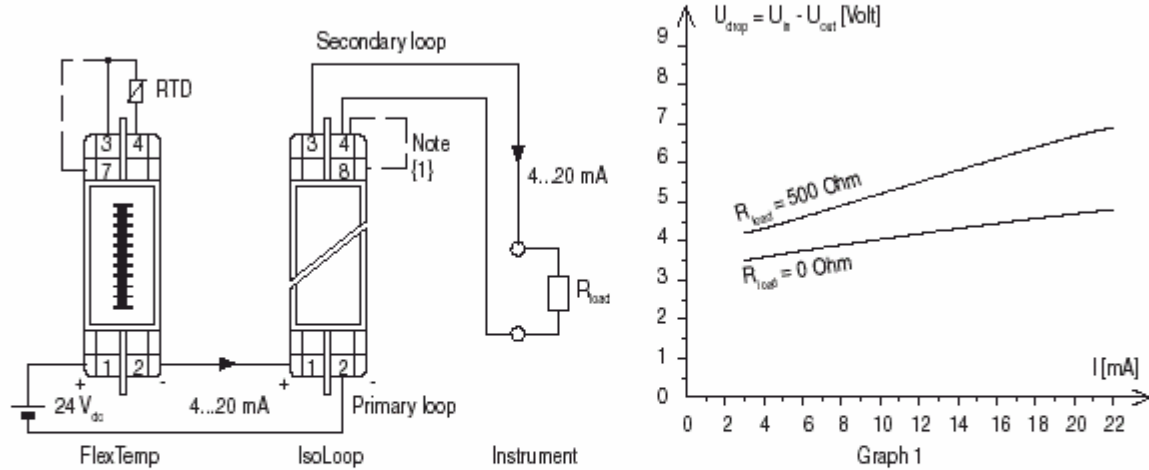


The potentiometers for Zero and Span adjustment are factory calibrated and sealed with laquer. Operator invention is normally not needed.



Examples of Application

Instrument isolator



Calculation of min. voltage supply (U_{in})
 $U_{in} \geq U_{drop} + U_{FlexTemp} + (I_{max} \cdot R_{load})$

Ex.: $R_{load} = 500 \text{ Ohm}$; $I_{max} = 20 \text{ mA}$;
 $U_{drop} = 6.5 \text{ V}$ (read graph 1)

$U_{in} \geq 6.5 + 6.5 + (0.020 \cdot 500) = 23 \text{ V}$

Calculation of max. load resistance (R_{load})

$$R_{load} \leq \frac{U_{in} - U_{drop}}{I_{max}} [\text{Ohm}]$$

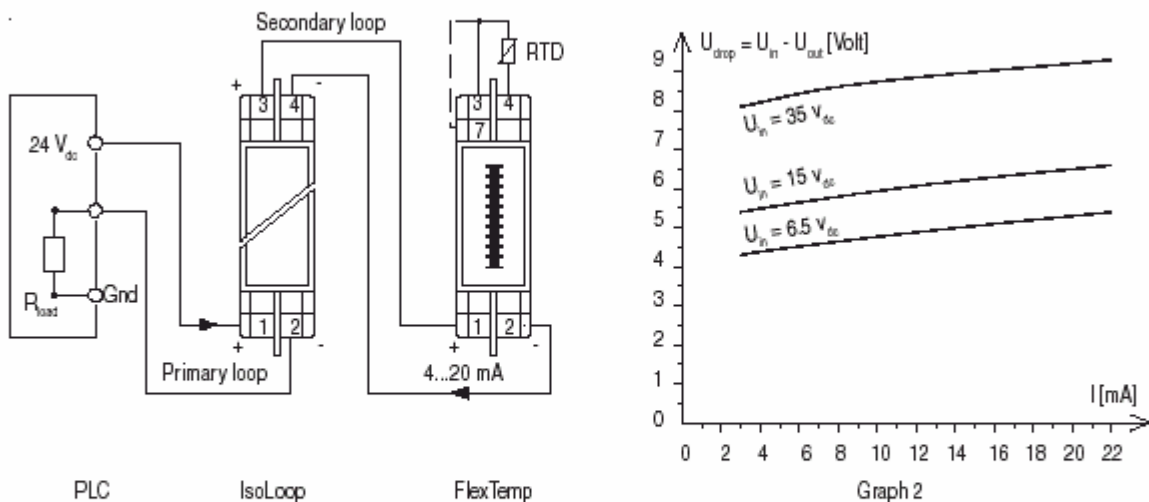
Ex.: $U_{in} = 24 \text{ V}$; $U_{drop} = 8 \text{ V}$ (read graph 1)

$$R_{load} \leq \frac{24 - 8}{20} = 800 \text{ Ohm}$$

Note

(1) When the terminals 4 and 8 are connected together a 6.8 V zener diode is connected across the secondary loop. This will protect the primary loop against interruptions in the secondary loop for $R_{load} \leq 250 \text{ Ohm}$. With open secondary loop the total voltage drop over terminals 1 and 2 will then be max. 13.5 V_{DC} .

Transmitter isolator



Calculation of min. voltage supply (U_{in})
 $U_{in} \geq U_{drop} + U_{FlexTemp} + (I_{max} \cdot R_{load})$

Ex.: $R_{load} = 100 \text{ Ohm}$; $I_{max} = 20 \text{ mA}$;
 $U_{drop} = 6.0 \text{ V}$ (read graph 2)

$U_{in} \geq 6.0 + 6.5 + (0.020 \cdot 100) = 14.5 \text{ V}$